Attention Deficit Hyperactivity Disorder

DEPARTMENT OF HEALTH AND HUMAN SERVICES NATIONAL INSTITUTES OF HEALTH

NIMH
National Institute of Mental Health

Attention Deficit Hyperactivity Disorder (ADHD) is a condition that becomes apparent in some children in the preschool and early school years. It is hard for these children to control their behavior and/or pay attention. It is estimated that between 3 and 5 percent of children have attention deficit hyperactivity disorder (ADHD), or approximately 2 million children in the United States. This means that in a classroom of 25 to 30 children, it is likely that at least one will have ADHD.

ADHD was first described by Dr. Heinrich Hoffman in 1845. A physician who wrote books on medicine and psychiatry, Dr. Hoffman was also a poet who became interested in writing for children when he couldn't find suitable materials to read to his 3-year-old son. The result was a book of poems, complete with illustrations, about children and their characteristics. "The Story of Fidgety Philip" was an accurate description of a little boy who had attention deficit hyperactivity disorder. Yet

it was not until 1902 that Sir George F. Still published a series of lectures to the Royal College of Physicians in England in which he described a group of impulsive children with significant behavioral problems, caused by a genetic dysfunction and not by poor child rearing—children who today would be easily recognized as having ADHD.[1] Since then, several thousand scientific papers on the disorder have been published, providing information on its nature, course, causes, impairments, and treatments.

A child with ADHD faces a difficult but not insurmountable task ahead. In order to achieve his or her full potential, he or she should receive help, guidance, and understanding from parents, guidance counselors, and the public education system. This brochure offers information on ADHD and its management, including research on medications and behavioral interventions, as well as helpful resources on educational options.

Because ADHD often continues into adulthood, this brochure contains a section on the diagnosis and treatment of ADHD in adults.

Symptoms

The principle characteristics of ADHD are **inattention**, **hyperactivity**, and **impulsivity**. These symptoms appear early in a child's life. Because many normal children may have these symptoms, but at a low level, or the symptoms may be caused by another disorder, it is important that the child receive a thorough examination and appropriate diagnosis by a well qualified professional.

Symptoms of ADHD will appear over the course of many months, often with the symptoms of impulsiveness and hyperactivity preceding those of inattention that may not emerge for a year or more. Different symptoms may appear in different settings, depending on the demands the situation may pose for the child's self-control. A child who "can't sit still" or is otherwise disruptive will be noticeable in school, but the inattentive daydreamer may be overlooked. The impulsive child who acts before thinking may be considered just a "discipline problem," while the child who is passive or sluggish may be viewed as merely unmotivated. Yet both may have different types of ADHD. All children are sometimes restless, sometimes act without thinking, sometimes daydream the time away. When the child's hyperactivity, distractibility, poor concentration, or impulsivity begin to affect performance in school, social relationships with other children, or behavior at home, ADHD may be suspected. But because the symptoms vary so much across settings, ADHD is not easy to diagnose. This is especially true when inattentiveness is the primary symptom.

According to the most recent version of the *Diagnostic and Statistical Manual of Mental Disorder*[2] (DSM-IV-TR), there are three patterns of behavior that indicate ADHD. People with ADHD may show several signs of being consistently inattentive. They may have a pattern of being hyperactive and impulsive far more than others of their age. Or they may show all three types of behavior. This means that there are three subtypes of ADHD recognized by professionals. These are the **predominantly hyperactive-impulsive type** (that does not show significant inattention); the **predominantly inattentive type** (that does not show significant hyperactive-impulsive behavior) sometimes called

ADD—an outdated term for this entire disorder; and the **combined type** (that displays both inattentive and hyperactive-impulsive symptoms).

Hyperactivity-impulsivity

Hyperactive children always seem to be "on the go" or constantly in motion. They dash around touching or playing with whatever is in sight, or talk incessantly. Sitting still at dinner or during a school lesson or story can be a difficult task. They squirm and fidget in their seats or roam around the room. Or they may wiggle their feet, touch everything, or noisily tap their pencil. Hyperactive teenagers or adults may feel internally restless. They often report needing to stay busy and may try to do several things at once.

Impulsive children seem unable to curb their immediate reactions or think before they act. They will often blurt out inappropriate comments, display their emotions without restraint, and act without regard for the later consequences of their conduct. Their impulsivity may make it hard for them to wait for things they want or to take their turn in games. They may grab a toy from another child or hit when they're upset. Even as teenagers or adults, they may impulsively choose to do things that have an immediate but small payoff rather than engage in activities that may take more effort yet provide much greater but delayed rewards.

Some signs of **hyperactivity-impulsivity** are:

- Feeling restless, often fidgeting with hands or feet, or squirming while seated
- Running, climbing, or leaving a seat in situations where

sitting or quiet behavior is expected
- Blurting out answers before hearing the whole question
- Having difficulty waiting in line or taking turns.

Inattention

Children who are inattentive have a hard time keeping their minds on any one thing and may get bored with a task after only a few minutes. If they are doing something they really enjoy, they have no trouble paying attention. But focusing deliberate, conscious attention to organizing and completing a task or learning something new is difficult.

Homework is particularly hard for these children. They will forget to write down an assignment, or leave it at school. They will forget to bring a book home, or bring the wrong one. The homework, if finally finished, is full of errors and erasures. Homework is often accompanied by frustration for both parent and child.

The DSM-IV-TR gives these signs of **inattention**.

- Often becoming easily distracted by irrelevant sights and sounds
- Often failing to pay attention to details and making careless mistakes
- Rarely following instructions carefully and completely losing or forgetting things like toys, or pencils, books, and tools needed for a task
- Often skipping from one uncompleted activity to another.

Children diagnosed with the Predominantly Inattentive Type of ADHD are seldom impulsive or hyperactive, yet have

significant problems paying attention. They appear to be daydreaming, "spacey," easily confused, slow moving and lethargic. They may have difficulty processing information as quickly and accurately as other children. When the teacher gives oral or even written instructions, this child has a hard time understanding what he or she is supposed to do and makes frequent mistakes. Yet the child may sit quietly, unobtrusively, and even appear to be working but not fully attending to or understanding the task and the instructions.

These children don't show significant problems with impulsivity and overactivity in the classroom, on the school ground, or at home. They may get along better with other children than the more impulsive and hyperactive types of ADHD, and they may not have the same sorts of social problems so common with the combined type of ADHD. So often their problems with inattention are overlooked. But they need help just as much as do the other types of ADHD who cause more obvious problems in the classroom.

Is It Really ADHD?

Not everyone who is overly hyperactive, inattentive, or impulsive has ADHD. Since most people sometimes blurt out things they didn't mean to say, or jump from one task to another, or become disorganized and forgetful, how can specialists tell if the problem is ADHD?

Because everyone shows some of these behaviors at times, the diagnosis requires that such behavior be demonstrated to a degree that is inappropriate for the person's age. The diagnostic guidelines also contain specific

requirements for determining when the symptoms indicate ADHD. The behaviors must appear early in life, before age 7, and continue for at least 6 months. Above all, the behaviors must create a real handicap in at least two areas of a person's life such as in the schoolroom, on the playground, at home, in the community, or in social settings. So someone who shows some symptoms but whose schoolwork or friendships are not impaired by these behaviors would not be diagnosed with ADHD. Nor would a child who seems overly active on the playground but functions well elsewhere receive an ADHD diagnosis.

To assess whether a child has ADHD, specialists consider several critical questions: Are these behaviors excessive, long-term, and pervasive? That is, do they occur more often than in other children the same age? Are they a continuous problem, not just a response to a temporary situation? Do the behaviors occur in several settings or only in one specific place like the playground or in the schoolroom? The person's pattern of behavior is compared against a set of criteria and characteristics of the disorder as listed in the DSM-IV-TR.

Diagnosis

Some parents see signs of inattention, hyperactivity, and impulsivity in their toddler long before the child enters school. The child may lose interest in playing a game, watching a TV show, or may run around completely out of control. But because children mature at different rates and are very different in personality, temperament, and energy levels, it's useful to get an expert's opinion of whether the

behavior is appropriate for the child's age. Parents can ask their child's pediatrician, or a child psychologist or psychiatrist, to assess whether their toddler has an attention deficit hyperactivity disorder or is, more likely at this age, just immature or unusually exuberant.

ADHD may be suspected by a parent or caretaker or may go unnoticed until the child runs into problems at school. Given that ADHD tends to affect functioning most strongly in school, sometimes the teacher is the first to recognize that a child is hyperactive or inattentive and may point it out to the parents and/or consult with the school psychologist. Because teachers work with many children, they come to know how "average" children behave in learning situations that require attention and self-control. However, teachers sometimes fail to notice the needs of children who may be more inattentive and passive yet who are quiet and cooperative, such as those with the predominantly inattentive form of ADHD.

Professionals who make the diagnosis

If ADHD is suspected, to whom can the family turn? What kinds of specialists do they need?

Ideally, the diagnosis should be made by a professional in your area with training in ADHD or in the diagnosis of mental disorders. Child psychiatrists and psychologists, developmental/behavioral pediatricians, or behavioral neurologists are those most often trained in differential diagnosis. Clinical social workers may also have such training.

The family can start by talking with the child's pediatrician or their family doctor. Some pediatricians may do the assessment themselves, but often they refer the family to an appropriate mental health specialist they know and trust. In addition, state and local agencies that serve families and children, as well as some of the volunteer organizations listed in the back of the brochure, can help identify appropriate specialists.

Specialty	Can Diagnose ADHD	Can prescribe medication, if needed	Provides counseling or training
Psychiatrists	yes	yes	yes
Psychologists	yes	no	yes
Pediatricians or Family Physicians	yes	yes	no
Neurologists	yes	yes	no
Clinical Social Workers	yes	no	yes

Knowing the differences in qualifications and services can help the family choose someone who can best meet their needs. There are several types of specialists qualified to diagnose and treat ADHD. Child psychiatrists are doctors who specialize in diagnosing and treating childhood mental and behavioral disorders. A psychiatrist can provide therapy and prescribe any needed medications. Child psychologists are also qualified to diagnose and treat ADHD. They can provide therapy for the child and help the family develop ways to deal

with the disorder. But psychologists are not medical doctors and must rely on the child's physician to do medical exams and prescribe medication. Neurologists, doctors who work with disorders of the brain and nervous system, can also diagnose ADHD and prescribe medicines. But unlike psychiatrists and psychologists, neurologists usually do not provide therapy for the emotional aspects of the disorder.

Within each specialty, individual doctors and mental health professionals differ in their experiences with ADHD. So in selecting a specialist, it's important to find someone with specific training and experience in diagnosing and treating the disorder.

Whatever the specialist's expertise, his or her first task is to gather information that will rule out other possible reasons for the child's behavior. Among possible causes of ADHD-like behavior are the following:

- A sudden change in the child's life—the death of a parent or grandparent; parents' divorce; a parent's job loss.
- Undetected seizures, such as in petit mal or temporal lobe seizures
- A middle ear infection that causes intermittent hearing problems
- Medical disorders that may affect brain functioning
- Underachievement caused by learning disability
- Anxiety or depression

Ideally, in ruling out other causes, the specialist checks the child's school and medical records. There may be a school record of hearing or vision problems, since most schools automatically screen for these. The specialist tries to determine whether the home and classroom environments are

unusually stressful or chaotic, and how the child's parents and teachers deal with the child.

Next the specialist gathers information on the child's ongoing behavior in order to compare these behaviors to the symptoms and diagnostic criteria listed in the DSM-IV-TR. This also involves talking with the child and, if possible, observing the child in class and other settings.

The child's teachers, past and present, are asked to rate their observations of the child's behavior on standardized evaluation forms, known as behavior rating scales, to compare the child's behavior to that of other children the same age. While rating scales might seem overly subjective, teachers often get to know so many children that their judgment of how a child compares to others is usually a reliable and valid measure.

The specialist interviews the child's teachers and parents, and may contact other people who know the child well, such as coaches or baby-sitters. Parents are asked to describe their child's behavior in a variety of situations. They may also fill out a rating scale to indicate how severe and frequent the behaviors seem to be.

In most cases, the child will be evaluated for social adjustment and mental health. Tests of intelligence and learning achievement may be given to see if the child has a learning disability and whether the disability is in one or more subjects.

In looking at the results of these various sources of information, the specialist pays special attention to the child's behavior during situations that are the most demanding of self-control, as well as noisy or unstructured situations such as parties, or during tasks that require sustained attention, like reading, working math problems, or playing a board game.

Behavior during free play or while getting individual attention is given less importance in the evaluation. In such situations, most children with ADHD are able to control their behavior and perform better than in more restrictive situations.

The specialist then pieces together a profile of the child's behavior. Which ADHD-like behaviors listed in the most recent DSM does the child show? How often? In what situations? How long has the child been doing them? How old was the child when the problem started? Are the behavior problems relatively chronic or enduring or are they periodic in nature? Are the behaviors seriously interfering with the child's friendships, school activities, or home life, or participation in community activities? Does the child have any other related problems? The answers to these questions help identify whether the child's hyperactivity, impulsivity, and inattention are significant and long-standing. If so, the child may be diagnosed with ADHD.

A correct diagnosis often resolves confusion about the reasons for the child's problems that lets parents and child move forward in their lives with more accurate information on what is wrong and what can be done to help. Once the disorder is diagnosed, the child and family can begin to receive whatever combination of educational, medical, and emotional help they need. This may include providing recommendations to school staff, seeking out a more appropriate classroom setting, selecting the right medication, and helping parents to manage their child's behavior.

What Causes ADHD?

One of the first questions a parent will have is "Why? What went wrong?" "Did I do something to cause this?" There is little compelling evidence at this time that ADHD can arise purely from social factors or child-rearing methods. Most substantiated causes appear to fall in the realm of neurobiology and genetics. This is not to say that environmental factors may not influence the severity of the disorder, and especially the degree of impairment and suffering the child may experience, but that such factors do not seem to give rise to the condition by themselves.

The parents' focus should be on looking forward and finding the best possible way to help their child. Scientists are studying causes in an effort to identify better ways to treat, and perhaps someday, to prevent ADHD. They are finding more and more evidence that ADHD does not stem from home environment, but from biological causes. Knowing this can remove a huge burden of guilt from parents who might blame themselves for their child's behavior.

Over the last few decades, scientists have come up with possible theories about what causes ADHD. Some of these theories have led to dead ends, some to exciting new avenues of investigation.

Environmental Agents. Studies have shown a possible correlation between the use of cigarettes and alcohol during pregnancy and risk for ADHD in the offspring of that pregnancy. As a precaution, it is best during pregnancy to refrain from both cigarette and alcohol use.

Another environmental agent that may be associated with a higher risk of ADHD is high levels of lead in the bodies of

young preschool children. Since lead is no longer allowed in paint and is usually found only in older buildings, exposure to toxic levels is not as prevalent as it once was. Children who live in old buildings in which lead still exists in the plumbing or in lead paint that has been painted over may be at risk.

Brain Injury. One early theory was that attention disorders were caused by brain injury. Some children who have suffered accidents leading to brain injury may show some signs of behavior similar to that of ADHD, but only a small percentage of children with ADHD have been found to have suffered a traumatic brain injury.

Food Additives and Sugar. It has been suggested that attention disorders are caused by refined sugar or food additives, or that symptoms of ADHD are exacerbated by sugar or food additives. In 1982, the National Institutes of Health held a scientific consensus conference to discuss this issue. It was found that diet restrictions helped about 5 percent of children with ADHD, mostly young children who had food allergies.[3] A more recent study on the effect of sugar on children, using sugar one day and a sugar substitute on alternate days, without parents, staff, or children knowing which substance was being used, showed no significant effects of the sugar on behavior or learning.[4]

In another study, children whose mothers felt they were sugar-sensitive were given aspartame as a substitute for sugar. Half the mothers were told their children were given sugar, half that their children were given aspartame. The mothers who thought their children had received sugar rated them as more hyperactive than the other children and were more critical of their behavior.[5]

Genetics. Attention disorders often run in families, so there are likely to be genetic influences. Studies indicate that 25 percent of the close relatives in the families of ADHD children also have ADHD, whereas the rate is about 5 percent in the general population.[6] Many studies of twins now show that a strong genetic influence exists in the disorder.[7]

Researchers continue to study the genetic contribution to ADHD and to identify the genes that cause a person to be susceptible to ADHD. Since its inception in 1999, the Attention-Deficit Hyperactivity Disorder Molecular Genetics Network has served as a way for researchers to share findings regarding possible genetic influences on ADHD.[8]

Recent Studies on Causes of ADHD. Some knowledge of the structure of the brain is helpful in understanding the research scientists are doing in searching for a physical basis for attention deficit hyperactivity disorder. One part of the brain that scientists have focused on in their search is the *frontal lobes* of the *cerebrum*. The frontal lobes allow us to solve problems, plan ahead, understand the behavior of others, and restrain our impulses. The two frontal lobes, the right and the left, communicate with each other through the *corpus callosum*, (nerve fibers that connect the right and left frontal lobes).

The *basal ganglia* are the interconnected gray masses deep in the cerebral hemisphere that serve as the connection between the cerebrum and the *cerebellum* and, with the cerebellum are responsible for motor coordination. The cerebellum is divided into three parts. The middle part is called the *vermis*.

All of these parts of the brain have been studied through the use of various methods for seeing into or imaging the

brain. These methods include functional magnetic resonance imaging (fMRI) positron emission tomography (PET), and single photon emission computed tomography (SPECT). The main or central psychological deficits in those with ADHD have been linked through these studies. By 2002 the researchers in the NIMH Child Psychiatry Branch had studied 152 boys and girls with ADHD, matched with 139 age-and gender-matched controls without ADHD. The children were scanned at least twice, some as many as four times over a decade. As a group, the ADHD children showed 3-4 percent smaller brain volumes in all regions—the frontal lobes, temporal gray matter, caudate nucleus, and cerebellum.

This study also showed that the ADHD children who were on medication had a white matter volume that did not differ from that of controls. Those never-medicated patients had an abnormally small volume of white matter. The white matter consists of fibers that establish long-distance connections between brain regions. It normally thickens as a child grows older and the brain matures.[9]

Although this long-term study used MRI to scan the children's brains, the researchers stressed that MRI remains a research tool and cannot be used to diagnose ADHD in any given child. This is true for other neurological methods of evaluating the brain, such as the PET and the SPECT.

Disorders that Sometimes Accompany ADHD

Learning Disabilities. Many children with ADHD—approximately 20 to 30 percent—also have a specific

learning disability (LD).[10] In preschool years, these disabilities include difficulty in understanding certain sounds or words and/or difficulty in expressing oneself in words. In school age children, reading or spelling disabilities, writing disorders, and arithmetic disorders may appear. A type of reading disorder, *dyslexia*, is quite widespread. Reading disabilities affect up to 8 percent of elementary school children.

Tourette Syndrome. A very small proportion of people with ADHD have a neurological disorder called Tourette syndrome. People with Tourette have various nervous tics and repetitive mannerisms, such as eye blinks, or facial twitches or grimacing. Others may clear their throats frequently, snort, sniff, or bark out words. These behaviors can be controlled with medication. While very few children have this syndrome, many of the cases of Tourette syndrome have associated ADHD. In such cases, both disorders often require treatment that may include medications.

Oppositional defiant disorder. As many as one-third to one-half of all children with ADHD—mostly boys—have another condition, known as oppositional defiant disorder (ODD). These children are often defiant, stubborn, non-compliant, have outbursts of temper, or become belligerent. They argue with adults and refuse to obey.

Conduct disorder. About 20 to 40 percent of ADHD children may eventually develop conduct disorder (CD), a more serious pattern of antisocial behavior. These children frequently lie or steal, fight with or bully others, and are at a real risk of getting into trouble at school or with the police. They violate the basic rights of other people, are aggressive toward people and/or animals, destroy property, break into people's homes, commit thefts, carry or use weapons, or

engage in vandalism. These children or teens are at greater risk for substance use experimentation, and later dependence and abuse. They need immediate help.

Anxiety and Depression. Some children with ADHD often have co-occurring anxiety or depression. If the anxiety or depression is recognized and treated, the child will be better able to handle the problems that accompany ADHD. Vice versa, effective treatment of ADHD can have a positive impact on anxiety as the child is better able to master academic tasks.

Bipolar Disorder. There are no accurate statistics on how many children with ADHD also have bipolar disorder. Differentiating between ADHD and bipolar disorder in childhood can be difficult. In its classic form, bipolar disorder is characterized by mood cycling between periods of intense highs and lows. But in children, bipolar often seems to be a rather chronic mood dysregulation with a mixture of elation, depression, and irritability. Furthermore, there are some symptoms that can be present both in ADHD and bipolar disorder, such as a high level of energy and a reduced need for sleep. Of the symptoms differentiating children with ADHD from those with bipolar disorder, elated mood and grandiosity of the bipolar child are distinguishing characteristics.[11]

The Treatment of ADHD

Every family wants to determine what treatment will be most effective for their child. This question needs to be answered by each family in consultation with their health care professional. To help families make this important decision, the National Institute of Mental Health (NIMH) has funded many studies of treatments for ADHD and has conducted the most intensive

study ever undertaken for evaluating the treatment of this disorder. This study is known as the Multimodal Treatment Study of Children with Attention Deficit Hyperactivity Disorder (MTA).[12] The NIMH is now conducting a clinical trial for younger children ages 3 to 5.5 years (Treatment of ADHD in Preschool-Age Children).

The Multimodal Treatment Study of Children with Attention Deficit Hyperactivity Disorder

The MTA study included 579 (95-98 at each of 6 treatment sites) elementary school boys and girls with ADHD, randomly assigning them to one of four treatment programs: (1) medication management alone; (2) behavioral treatment alone; (3) a combination of both; or (4) routine community care.

In each of the study sites, three groups were treated for the first 14 months in a specified protocol and the fourth group was referred for community treatment of the parents' choosing. All of the children were reassessed regularly throughout the study period. An essential part of the program was the cooperation of the schools, including principals and teachers. Both teachers and parents rated the children on hyperactivity, impulsivity, and inattention, and symptoms of anxiety and depression, as well as social skills.

The children in two groups (medication management alone and the combination treatment) were seen monthly for one-half hour at each medication visit. During the treatment visits, the prescribing physician spoke with the parent, met with the child, and sought to determine any concerns that the family might have regarding the medication or the child's ADHD-related difficulties. The physicians, in addition, sought

input from the teachers on a monthly basis. The physicians in the medication-only group did not provide behavioral therapy but did advise the parents when necessary concerning any problems the child might have.

In the behavior treatment-only group, families met up to 35 times with a behavior therapist, mostly in group sessions. These therapists also made repeated visits to schools to consult with children's teachers and to supervise a special aide assigned to each child in the group. In addition, children attended a special 8-week summer treatment program where they worked on academic, social, and sports skills, and where intensive behavioral therapy was delivered to assist children in improving their behavior.

Children in the combined therapy group received both treatments, that is, all the same assistance that the medication-only received, as well as all of the behavior therapy treatments.

In routine community care, the children saw the community-treatment doctor of their parents' choice one to two times per year for short periods of time. Also, the community-treatment doctor did not have any interaction with the teachers.

The results of the study indicated that long-term combination treatments and the medication-management alone were superior to intensive behavioral treatment and routine community treatment. And in some areas—anxiety, academic performance, oppositionality, parent-child relations, and social skills—the combined treatment was usually superior. Another advantage of combined treatment was that children could be successfully treated with lower doses of medicine, compared with the medication-only group.

Treatment of Attention Deficit Hyperactivity Disorder in Preschool-Age Children (PATS)

Because many children in the preschool years are diagnosed with ADHD and are given medication, it is important to know the safety and efficacy of such treatment. The NIMH is sponsoring an ongoing multi-site study, "Preschool ADHD Treatment Study" (PATS). It is the first major effort to examine the safety and efficacy of a stimulant, methylphenidate, for ADHD in this age group. The PATS study uses a randomized, placebo-controlled, double-blind design. Children aged 3 to 5 who have severe and persistent symptoms of ADHD that impair their functioning are eligible for this study. To avoid using medications at such an early age, all children who enter the study are first treated with behavioral therapy. Only children who do not show sufficient improvement with behavior therapy are considered for the medication part of the study. The study is being conducted at New York State Psychiatric Institute, Duke University, Johns Hopkins University, New York University, University of California at Los Angeles, and the University of California at Irvine. Enrollment in the study will total 165 children.

Which treatment should my child have?

For children with ADHD, no single treatment is the answer for every child. A child may sometimes have undesirable side effects to a medication that would make that particular treatment unacceptable. And, if a child with ADHD also has anxiety or depression, a treatment combining medication and behavioral therapy might be best. Each child's needs and personal history must be carefully considered.

Medications

For decades, medications have been used to treat the symptoms of ADHD.

The medications that seem to be the most effective are a class of drugs known as stimulants. Following is a list of the stimulants, their trade (or brand) names and their generic names. "Approved age" means that the drug has been tested and found safe and effective in children of that age.

Trade Name	Generic Name	Approved Age
Adderall	amphetamine	3 and older
Concerta	methylphenidate (long acting)	6 and older
Cylert*	pemoline	6 and older
Dexedrine	dextroamphetamine	3 and older
Dextrostat	dextroamphetamine	3 and older
Focalin	dexmethylphenidate	6 and older
Metadate ER	methylphenidate (extended release)	6 and older
Metadate CD	methylphenidate (extended release)	6 and older
Ritalin	methylphenidate	6 and older
Ritalin SR	methylphenidate (extended release)	6 and older
Ritalin LA	methylphenidate (long acting)	6 and older

*Because of its potential for serious side effects affecting the liver, Cylert should not ordinarily be considered as first-line drug therapy for ADHD.

The Food and Drug Adminstration recently approved a medication for ADHD that is not a stimulant. The medication, Strattera®, or atomoxetine, works on the neurotransmitter norepinephrine; whereas the stimulants primarily work on dopamine. Both of theses neurotransmitters are believed to play a role in ADHD. More studies will need to be done to contrast Strattera with the medications already available but the evidence to date indicates that over 70 percent of children with ADHD given Strattera manifest significant improvement in their symptoms.

Some people get better results from one medication, some from another. It is important to work with the prescribing physician to find the right medication and the right dosage. For many people, the stimulants dramatically reduce their hyperactivity and impulsivity and improve their ability to focus, work, and learn. The medications may also improve physical coordination, such as that needed in handwriting and in sports.

The stimulant drugs, when used with medical supervision, are usually considered quite safe. Stimulants do not make the child feel "high," although some children say they feel different or funny. Such changes are usually very minor. Although some parents worry that their child may become addicted to the medication, to date there is no convincing evidence that stimulant medications, when used for treatment of ADHD, cause drug abuse or dependence. A review of all long-term studies on stimulant medication and substance abuse, conducted by researchers at Massachusetts General Hospital and Harvard Medical School, found that teenagers with ADHD who remained on their medication during the teen years had a lower likelihood of substance use or abuse than did ADHD adolescents who were not taking medications.[13]

The stimulant drugs come in long- and short-term forms. The newer sustained-release stimulants can be taken before school and are long-lasting so that the child does not need to go to the school nurse every day for a pill. The doctor can discuss with the parents the child's needs and decide which preparation to use and whether the child needs to take the medicine during school hours only or in the evening and weekends too.

If the child does not show symptom improvement after taking a medication for a week, the doctor may try adjusting the dosage. If there is still no improvement, the child may be switched to another medication. About one out of ten children is not helped by a stimulant medication. Other types of medication may be used if stimulants don't work or if the ADHD occurs with another disorder. Antidepressants and other medications can help control accompanying depression or anxiety.

Sometimes the doctor may prescribe for a young child a medication that has been approved by the U.S. Food and Drug Administration (FDA) for use in adults or older children. This use of the medication is called "off label." Many of the newer medications that are proving helpful for child mental disorders are prescribed off label because only a few of them have been systematically studied for safety and efficacy in children. Medications that have not undergone such testing are dispensed with the statement that "safety and efficacy have not been established in pediatric patients."

Side Effects of the Medications

Most side effects of the stimulant medications are minor and are usually related to the dosage of the medication being taken. Higher doses produce more side effects. The most common side effects are decreased appetite, insomnia, increased anxiety and/or irritability. Some children report mild stomach aches or headaches.

Appetite seems to fluctuate, usually being low during the middle of the day and more normal by suppertime. Adequate amounts of food that is nutritional should be available for the child especially at peak appetite times.

If the child has difficulty falling asleep, several options may be tried—a lower dosage of the stimulant, giving the stimulant earlier in the day, discontinuing the afternoon or evening dosage, or giving an adjunct medication such as a low-dosage antidepressant or clonidine. A few children develop tics during treatment. These can often be lessened by changing the medication dosage. A very few children cannot tolerate any stimulant, no matter how low the dosage. In such cases, the child is often given an antidepressant instead of the stimulant.

When a child's schoolwork and behavior improve soon after starting medication, the child, parents, and teachers tend to applaud the drug for causing the sudden changes. Unfortunately, when people see such immediate improvement, they often think medication is all that's needed. But medications don't cure ADHD; they only control the symptoms on the day they are taken. Although the medications help the child pay better attention and complete school work, they can't increase knowledge or improve academic skills. The medications help the child to use those skills he or she already possesses.

Behavioral therapy, emotional counseling, and practical support will help ADHD children cope with everyday problems and feel better about themselves.

Facts to remember about medication for ADHD

- Medications for ADHD help many children focus and be more successful at school, home, and play. Avoiding negative experiences now may actually help prevent addictions and other emotional problems later.

- About 80 percent of children who need medication for ADHD still need it as teenagers. Over 50 percent need medication as adults.

Medication for the Child with Both ADHD and Bipolar Disorder

Since a child with bipolar disorder will probably be prescribed a mood stabilizer such as lithium or Depakote®, the doctor will carefully consider whether the child should take one of the medications usually prescribed for ADHD. If a stimulant medication is prescribed, it may be given in a lower dosage than usual.

The Family and the ADHD Child

Medication can help the ADHD child in everyday life. He or she may be better able to control some of the behavior problems that have led to trouble with parents and siblings. But it takes time to undo the frustration, blame, and anger that may have gone on for so long. Both parents and children may need special help to develop techniques for managing the patterns of behavior. In such cases, mental health professionals can counsel the child and the family, helping them to develop new skills, attitudes, and ways of relating to each other. In individual counseling, the therapist helps children with ADHD learn to feel better about themselves. The therapist can also help them to identify and build on their strengths, cope with daily problems, and control their attention and aggression. Sometimes only the child with ADHD needs counseling support. But in many cases, because the problem affects the family as a whole, the entire family may need help.

The therapist assists the family in finding better ways to handle the disruptive behaviors and promote change. If the child is young, most of the therapist's work is with the parents, teaching them techniques for coping with and improving their child's behavior.

Several intervention approaches are available. Knowing something about the various types of interventions makes it easier for families to choose a therapist that is right for their needs.

Psychotherapy works to help people with ADHD to like and accept themselves despite their disorder. It does not address the symptoms or underlying causes of the disorder. In psychotherapy, patients talk with the therapist about upsetting thoughts and feelings, explore self-defeating patterns of behavior, and learn alternative ways to handle their emotions. As they talk, the therapist tries to help them understand how they can change or better cope with their disorder.

Behavioral therapy (BT) helps people develop more effective ways to work on immediate issues. Rather than helping the child understand his or her feelings and actions, it helps directly in changing their thinking and coping and thus may lead to changes in behavior. The support might be practical assistance, like help in organizing tasks or schoolwork or dealing with emotionally charged events. Or the support might be in self-monitoring one's own behavior and giving self-praise or rewards for acting in a desired way such as controlling anger or thinking before acting.

Social skills training can also help children learn new behaviors. In social skills training, the therapist discusses and models appropriate behaviors important in developing and maintaining social relationships, like waiting for a turn,

sharing toys, asking for help, or responding to teasing, then gives children a chance to practice. For example, a child might learn to "read" other people's facial expression and tone of voice in order to respond appropriately. Social skills training helps the child to develop better ways to play and work with other children.

Support groups help parents connect with other people who have similar problems and concerns with their ADHD children. Members of support groups often meet on a regular basis (such as monthly) to hear lectures from experts on ADHD, share frustrations and successes, obtain referrals to qualified specialists and information about what works. There is strength in numbers, and sharing experiences with others who have similar problems helps people know that they aren't alone. National organizations are listed in the back of this brochure.

Parenting skills training, offered by therapists or in special classes, gives parents tools and techniques for managing their child's behavior. One such technique is the use of token or point systems for immediately rewarding good behavior or work. Another is the use of "time out" or isolation to a chair or bedroom when the child becomes too unruly or out of control. During time outs, the child is removed from the agitating situation and sits alone quietly for a short time to calm down. Parents may also be taught to give the child "quality time" each day, in which they share a pleasurable or relaxed activity. During this time together, the parent looks for opportunities to notice and point out what the child does well, and praise his or her strengths and abilities.

This system of rewards and penalties can be an effective way to modify a child's behavior. The parents (or teacher) identify a few desirable behaviors that they want to encourage in the child—such as asking for a toy instead of grabbing it, or completing a simple task. The child is told exactly what is expected in order to earn the reward. The child receives the reward when he performs the desired behavior and a mild penalty when he doesn't. A reward can be small, perhaps a token that can be exchanged for special privileges, but it should be something the child wants and is eager to earn. The penalty might be removal of a token or a brief time out. *Make an effort to find your child being good.* The goal, over time, is to help children learn to control their own behavior and to choose the more desired behavior. The technique works well with all children, although children with ADHD may need more frequent rewards.

In addition, parents may learn to structure situations in ways that will allow their child to succeed. This may include allowing only one or two playmates at a time, so that their child doesn't get overstimulated. Or if their child has trouble completing tasks, they may learn to help the child divide a large task into small steps, then praise the child as each step is completed. Regardless of the specific technique parents may use to modify their child's behavior, some general principles appear to be useful for most children with ADHD. These include providing more frequent and immediate feedback (including rewards and punishment), setting up more structure in advance of potential problem situations, and providing greater supervision and encouragement to children with ADHD in relatively unrewarding or tedious situations.

Parents may also learn to use stress management methods, such as meditation, relaxation techniques, and

exercise to increase their own tolerance for frustration, so that they can respond more calmly to their child's behavior.

Some Simple Behavioral Interventions

Children with ADHD may need help in organizing. Therefore:

- **Schedule.** Have the same routine every day, from wake-up time to bedtime. The schedule should include homework time, playtime (including outdoor recreation and indoor activities such as computer games). Have the schedule on the refrigerator or a bulletin board in the kitchen. If a schedule change must be made, make it as far in advance as possible.
- **Organize needed everyday items.** Have a place for everything and keep everything in its place. This includes clothing, backpacks, school supplies.
- **Use homework and notebook organizers.** Stress the importance of writing down assignments and bringing home needed books.

Children with ADHD need consistent rules that they can understand and follow. If rules are followed, give small rewards. Children with ADHD often receive, and expect, criticism. Look for good behavior and praise it.

Your ADHD Child and School

You are your child's best advocate. To be a good advocate for your child, learn as much as you can about ADHD and how it affects your child at home, in school, in social situations.

If your child has shown symptoms of ADHD from an early age and has been evaluated, diagnosed, and treated with either behavior modification or medication or a combination of both, when your child enters the school system, let his or her teachers know. They will be better prepared to help the child come into this new world away from home.

If, after your child enters school and is experiencing difficulties that lead you to suspect that he or she has ADHD, you can either seek the services of an outside professional or you can ask the local school district to conduct an evaluation. Some parents prefer to go to a professional of their own choice. But it is the school's obligation to evaluate a child that they suspect has ADHD or some other disability that is affecting not only their academic work but their interactions with classmates and teachers.

If you feel that your child has ADHD and isn't learning in school as he or she should, you should find out just whom in the school system you should contact. Your child's teacher should be able to help you with this information. Then you can request—in writing—that the school system evaluate your child. The letter should include the date, your and your child's names, and the reason for requesting an evaluation. Keep a copy of the letter in your own files.

Until the last few years, many school systems were reluctant to evaluate a child with ADHD. But recent laws have made clear the school's obligation to the child suspected of having ADHD that is affecting adversely his or her performance in school. If the school persists in refusing to evaluate your child, you can either get a private evaluation or enlist some help in negotiating with the school. Help is often as close as a local parent group. Each state has a Parent Training and Information (PTI) center as well as a Protection

and Advocacy (P&A) agency. (For information on the law and on the PTL and P&A, see the section on support groups and organizations in the back of the brochure.)

Once your child has been diagnosed with ADHD and qualifies for special education services, the school, working with you, must assess the child's strengths and weaknesses and design an Individualized Educational Program (IEP). You should be able periodically to review and approve your child's IEP. Each school year brings a new teacher and new schoolwork, a transition that can be quite difficult for the child with ADHD. Your child needs lots of support and encouragement at this time.

Never forget the cardinal rule—*you are your child's best advocate*.

Your Teenager with ADHD

Your child with ADHD has successfully navigated the early school years and is beginning his or her journey through middle school and high school. Although your child has been periodically evaluated through the years, this is a good time to have a complete re-evaluation of your child's health.

The teen years are challenging for most children; for the child with ADHD these years are doubly hard. All the adolescent problems—peer pressure, the fear of failure in both school and socially, low self-esteem—are harder for the ADHD child to handle. The desire to be independent, to try new and forbidden things—alcohol, drugs, and sexual activity—can lead to unforeseen consequences. The rules that once were, for the most part, followed, are often now flaunted. Parents

may not agree with each other on how the teenager's behavior should be handled.

Now, more than ever, rules should be straightforward and easy to understand. Communication between the adolescent and parents can help the teenager to know the reasons for each rule. When a rule is set, it should be clear why the rule is set. Sometimes it helps to have a chart, posted usually in the kitchen, that lists all household rules and all rules for outside the home (social and school). Another chart could list household chores with space to check off a chore once it is done.

When rules are broken—and they will be—respond to this inappropriate behavior as calmly and matter-of-factly as possible. Use punishment sparingly. Even with teens, a time-out can work. Impulsivity and hot temper often accompany ADHD. A short time alone can help.

As the teenager spends more time away from home, there will be demands for a later curfew and the use of the car. Listen to your child's request, give reasons for your opinion and listen to his or her opinion, and negotiate. *Communication, negotiation, and compromise* will prove helpful.

Your teenager and the car. Teenagers, especially boys, begin talking about driving by the time they are 15. In some states, a learner's permit is available at 15 and a driver's license at 16. Statistics show that 16-year-old drivers have more accidents per driving mile than any other age. In the year 2000, 18 percent of those who died in speed-related crashes were youth aged 15 to 19. Sixty-six percent of these youth were not wearing safety belts. Youth with ADHD, in

their first 2-5 years of driving, have nearly four times as many automobile accidents, are more likely to cause bodily injury in accidents, and have three times as many citations for speeding as the young drivers without ADHD.[14]

Most states, after looking at the statistics for automobile accidents involving teenage drivers, have begun to use a graduated driver licensing system (GDL). This system eases young drivers onto the roads by a slow progression of exposure to more difficult driving experiences. The program, as developed by the National Highway Traffic Safety Administration and the American Association of Motor Vehicle Administrators, consists of three stages: learner's permit, intermediate (provisional) license, and full licensure. Drivers must demonstrate responsible driving behavior at each stage before advancing to the next level. During the learner's permit stage, a licensed adult must be in the car at all times.[15] This period of time will give the learner a chance to practice, practice, practice. The more your child drives, the more efficient he or she will become. The sense of accomplishment the teenager with ADHD will feel when the coveted license is finally in his or her hands will make all the time and effort involved worthwhile.

Note: The State Legislative Fact Sheets – Graduated Driver Licensing System can be found at website http://www.nhtsa.dot.gov/people/outreach/stateleg/graddriverlic.htm, or it can be ordered from NHTSA Headquarters, Traffic Safety Programs, ATTN: NTS-32, 400 Seventh Street, S.W., Washington, DC 20590; telephone 202-366-6948.

Attention Deficit Hyperactivity Disorder in Adults

Attention Deficit Hyperactivity Disorder is a highly publicized childhood disorder that affects approximately 3 to 5 percent of all children. What is much less well known is the probability that, of children who have ADHD, many will still have it as adults. Several studies done in recent years estimate that between 30 percent and 70 percent of children with ADHD continue to exhibit symptoms in the adult years.[16]

The first studies on adults who were never diagnosed as children as having ADHD, but showed symptoms as adults, were done in the late 1970s by Drs. Paul Wender, Frederick Reimherr, and David Wood. These symptomatic adults were retrospectively diagnosed with ADHD after the researchers' interviews with their parents. The researchers developed clinical criteria for the diagnosis of adult ADHD (the Utah Criteria) which combined past history of ADHD with current evidence of ADHD behaviors.[17] Other diagnostic assessments are now available; among them are the widely used Conners Rating Scale and the Brown Attention Deficit Disorder Scale.

Typically, adults with ADHD are unaware that they have this disorder—they often just feel that it's impossible to get organized, to stick to a job, to keep an appointment. The everyday tasks of getting up, getting dressed and ready for the day's work, getting to work on time, and being productive on the job can be major challenges for the ADD adult.

Diagnosing ADHD in an Adult

Diagnosing an adult with ADHD is not easy. Many times, when a child is diagnosed with the disorder, a parent will

recognize that he or she has many of the same symptoms the child has and, for the first time, will begin to understand some of the traits that have given him or her trouble for years—distractability, impulsivity, restlessness. Other adults will seek professional help for depression or anxiety and will find out that the root cause of some of their emotional problems is ADHD. They may have a history of school failures or problems at work. Often they have been involved in frequent automobile accidents.

To be diagnosed with ADHD, an adult must have childhood-onset, persistent, and current symptoms.[18] The accuracy of the diagnosis of adult ADHD is of utmost importance and should be made by a clinician with expertise in the area of attention dysfunction. For an accurate diagnosis, a history of the patient's childhood behavior, together with an interview with his life partner, a parent, close friend or other close associate, will be needed. A physical examination and psychological tests should also be given. Co-morbidity with other conditions may exist such as specific learning disabilities, anxiety, or affective disorders.

A correct diagnosis of ADHD can bring a sense of relief. The individual has brought into adulthood many negative perceptions of himself that may have led to low esteem. Now he can begin to understand why he has some of his problems and can begin to face them. This may mean, not only treatment for ADHD but also psychotherapy that can help him cope with the anger he feels about the failure to diagnose the disorder when he was younger.

Treatment of ADHD in an Adult

Medications – As with children, if adults take a medication

for ADHD, they often start with a stimulant medication (see page 22). The stimulant medications affect the regulation of two neurotransmitters, norepinephrine and dopamine. The newest medication approved for ADHD by the Food and Drug Administration, atomoxetine (Strattera®) has been tested in controlled studies in both children and adults and has been found to be effective.[19]

Antidepressants are considered a second choice for treatment of adults with ADHD. The older antidepressants, the tricyclics, are sometimes used because they, like the stimulants, affect norepinephrine and dopamine. Venlafaxine (Effexor®), a newer antidepressant is also used for its effect on norepinephrine. Bupropion (Wellbutrin®), an antidepressant with indirect effect on the neurotransmitter dopamine, has been useful in clinical trials on the treatment of ADHD in both children and adults. It has the added attraction of being useful in reducing cigarette smoking.

In prescribing for an adult, special considerations are made. The adult may need less of the medication for his weight. A medication may have a longer "half life" in an adult. The adult may take other medications for physical problems such as diabetes or high blood pressure. Often the adult is also taking a medication for anxiety or depression. All of these variables must be taken into account before a medication is prescribed.

Education and Psychotherapy – Although medication gives needed support, the individual must succeed on his own. To help in this struggle, both "psychoeducation" and individual psychotherapy can be helpful. A professional coach can help the ADHD adult learn how to organize his life by using "Props"—a large calendar posted where it will be seen in the morning, date books, lists, reminder notes. Have a special

place to put your keys, your bills, the paperwork of everyday life. Break down tasks into sections, so that completion of each part of the task can give a sense of accomplishment. Above all, learn as much as you can about the disorder.

Psychotherapy can be a useful adjunct to medication and education. First, just remembering to keep an appointment on time with the therapist is a step toward keeping to a routine. Therapy can help change a long-standing poor self-image by examining the experiences that produced it. The therapist can encourage the ADHD patient to adjust to changes brought into his life by treatment—the perceived loss of impulsivity and love of risk-taking, the new sensation of thinking before acting. As the patient begins to have small successes in his new ability to bring organization out of the complexities of his or her life, he or she can begin to appreciate the characteristics of ADHD that are positive—boundless energy, warmth and enthusiasm.

References

1. Still GF. Some abnormal psychical conditions in children: the Goulstonian lectures. *Lancet,* 1902;1:1008-1012.
2. DSM-IV-TR workgroup. *The Diagnostic and Statistical Manual of Mental Disorders,* Fourth Edition, Text Revision.Washington, DC: American Psychiatric Association.
3. Consensus Development Panel. *Defined Diets and Childhood Hyperactivity.* National Institutes of Health Consensus Development Conference Summary, Volume 4, Number 3, 1982.
4. Wolraich M, Milich R, Stumbo P, Schultz F. The effects of sucrose ingestin on the behavior of hyperactive boys.

Pediatrics, 1985; 106; 657-682.
5. Hoover DW, Milich R. Effects of sugar ingestion expectancies on mother-child interaction. *Journal of Abnormal Child Psychology,* 1994; 22; 501-515.
6. Biederman J, Faraone SV, Keenan K, Knee D, Tsuang MF. Family-genetic and psychosocial risk factors in DSM-III attention deficit disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*, 1990; 29(4): 526-533.
7. Faraone SV, Biederman J. Neurobiology of Attention-Deficit Hyperactivity Disorder. *Biological Psychiatry*, 1998; 44; 951-958.
8. The ADHD Molecular Genetics Network. Report from the third international meeting of the attention-deficit hyperactivity disorder molecular genetics network. *American Journal of Medical Genetics*, 2002, 114:272-277.
9. Castellanos FX, Lee PP, Sharp W, Jeffries NO, Greenstein DK, Clasen LS, Blumenthal JD, James RS, Ebens CI, Walter JM, Zijdenbos A, Evans AC, Giedd JN, Rapoport JL. Developmental trajectories of brain volume abnormalities in children and adolescents with attention-deficit/hyperactivity disorder. *Journal of the American Medical Association*, 2002, 288:14:1740-1748.
10. Wender PH. *ADHD Attention-Deficit Hyperactivity Disorder in Children and Adults.* Oxford: University Press, 2000, p. 9.
11. Geller B, Williams M, Zimerman B, Frazier J, Beringer L, Warner KL. Prepubertal and early adolescent bipolarity differentiate from ADHD by manic symptoms, grandiose delusions, ultra-rapid or ultradian cycling. *Journal of Affective Disorders*, 1998, 51:81-91.

12. The MTA Cooperataive Group. A 14-month randomized clinical trial of treatment strategies for attention-deficit hyperactivity disorder (ADHD). *Archives of General Psychiatry*, 1999;56:1073-1086.
13. Wilens TC, Faraone, SV, Biederman J, Gunawardene S. Does stimulant therapy of attention-deficit/hyperactivity disorder beget later substance abuse? A meta-analytic review of the literature. *Pediatrics*, 2003, 111:1:179-185.
14. Barkley RA. *Taking Charge of ADHD.* New York: The Guilford Press, 2001, p.21.
15. U.S. Department of Transportation, National Highway Traffic Safety Administration. *State Legislative Fact Sheet,* April 2002.
16. Silver LB. Attention-deficit hyperactivity disorder in adult life. *Child and Adolescent Psychiatric Clinics of North America*, 2000:9:3: 411-523.
17. Wender PH. Pharmacotherapy of attention-deficit/ hyperactivity in adults. *Journal of Clinical Psychiatry*, 1998; 59 (supplement 7):76-79.
18. Wilens TE, Biederman J, Spencer TJ. Attention deficit/hyperactivity disorder across the lifespan. *Annual Review of Medicine*, 2002:53:113-131.
19. *Attention Deficit Disorder in Adults.* Harvard Mental Health Letter, 2002:19;5:3-6.

Resource Books

The following books were helpful resources in the writing of this brochure. Many other informative books can be found at any good bookstore, on a website that offers books for sale, or from the ADD Warehouse catalog (see next page).

Taking Charge of ADHD, by Russell A. Barkley, PhD. New York: The Guilford Press, 2000.

ADHD Attention-Deficit Hyperactivity Disorder in Children and Adults, by Paul H. Wender, MD. Oxford: The Oxford Press, 2000.

Straight Talk about Psychiatric Medications for Kids, by Timothy E. Wilens, MD. New York: The Guilford Press, 1999.

Support Groups and Organizations

These organizations can be contacted by mail or by telephone. If you have a computer, you will be able to access a great deal of information by going to the websites. Many of these organizations have up-to-date information on the Individuals with Disabilities Education Act (IDEA) amendments of 1997 and current updates of the law.

The Attention Deficit Information Network, Inc.
58 Prince St.
Needham, MA 02492

781-455-9895
http://www.addinfonetwork.com

Offers support and information to families of children with ADD, adults with ADD, and professionals through a network of AD-IN chapters.

ADD Warehouse
3200 Northwest 70th Ave., Suite 102
Plantation, FL 33317
800-233-9273
http://addwarehouse.com

A central location for ordering books, tapes, assessment scales, and videos carefully selected to help parents, educators, and health professionals assist people affected by developmental disorders, including ADHD and related disorders. Call or write for catalog.

Center for Mental Health Services
5600 Fishers Lane, Room 15-105
Rockville, MD 20857
800-789-2647
http://www.samhsa.gov

A component of the U.S. Department of Health and Human Services; provides a range of information on mental health, treatment, and support services. Lists Protection and Advocacy for each state.

Children and Adults with Attention Deficit Disorders (CHADD)
8181 Professional Place, Suite 150
Landover, MD 20785
800-233-4050
http://www.chadd.org

A major advocate for those with ADHD. Website has frequently asked questions section and offers information on legal rights.

Council for Exceptional Children
1110 North Glebe Road
Suite 300
Arlington, VA 22201-5704
888-CEC-SPED
http://www.cec.sped.org

Provides materials for educators to use in working with children.

ERIC Clearinghouse on Disabilities and Gifted Education (ERIC)
1110 North Glebe Road
Arlington, VA 22201-5704
800-328-0272
http://www.ericec.org

ERIC (Educational Resources Information Center) is a part of the U.S. Department of Education. ERIC provides information on the education of individuals with disabilities as well as those who are gifted.

Federation of Families for Children's Mental Health
1101 King St.
Alexandria, VA 22314
703-684-7710
http://www.ffcmh.org

Serves the needs of children with serious emotional, behavioral, and mental disorders and their families. Includes publications, information on related seminars and workshops, speaker's bureau, crisis interventon and support groups.

Heath Resource Center
The George Washington University
2121 K St., NW, Suite 220
Washington, DC 20037
800-544-3284
http://www.heath.gwu.edu

Information on financial aid for students with disabilities, including Federal aid, state vocational rehabilitation services, and regional and local sources.

National Center for Learning Disabilities
381 Park Ave., South Suite 1401
New York, NY 10016
212-545-7510
http://www.ld.org

Offers information, resources, and referral services, advocates for more effective policies. As part of website, has IDEA watch.

National Clearinghouse for Alcohol and Drug Information
PO Box 2345
Rockville, MD 20847
800-729-6686
http://www.health.org

Provides information on the risks of alcohol use during pregnancy, and fetal alcohol syndrome.

National Information Center for Children and Youth with Disabilities (NICHCY)
PO Box 1492
Washington, DC 20013
800-695-0285
http://www.nichcy.org

Information about disabilities in children and youth. Good frequently asked questions site on web. Lists resources in every state, including Parent Training and Information Centers (PTI).

U.S. Department of Education
Office of Special Education Programs
400 Maryland Ave., SW
Washington, DC 20202
http://www.ed.gov/offices/OSERS/OSEP/

Excellent Federal Government site for information on Parent Training and Information Centers (PTI) as well as IDEA.

Sibling Information Network
249 Glenbrook Road
Suite U64
Storrs, CT 06269-2064
203-344-7500

Information for affected individuals, their families (including siblings), and professionals.

Tourette Syndrome Association, Inc.
42-40 Bell Boulevard
Bayside, NY 11361-2820
718-224-2999
http://www.tsa-usa.org

Develops and disseminates educational material; promotes research into the causes and cure of Tourette Syndrome. Has support chapters nationwide.

For more information on research into the brain, behavior, and mental disorders contact:

National Institute of Mental Health
Office of Communications
6001 Executive Boulevard, Room 8184, MSC 9663
Bethesda, Maryland 20892-9663
Phone: 301-443-4513 or 1-866-615-NIMH (6464) toll free
TTY: 301-443-8431
FAX: 301-443-4279
FAX 4U: 301-443-5158
E-mail: nimhinfo@nih.gov
Web site: http://www.nimh.nih.gov

———————

This is a revision of *Attention Deficit Hyperactivity Disorder*, a brochure first printed in 1994 and reprinted in 1996. The revision is by Margaret Strock, staff member in the Office of Communications, National Institute of Mental Health (NIMH) Scientific review was provided by Russell A. Barkley, PhD, Medical University of South Carolina; Peter A. Jensen, MD, Columbia University; Edgardo Menvielle, MD, and Benedetto Vitiello, MD, staff members, NIMH. Editorial assistance was provided by Lisa Alberts and Constance Burr, Office of Communications, NIMH.

All material in this brochure is in the public domain and may be reproduced or copied without permission from the Institute. Citation of the National Institute of Mental Health as the source is appreciated.

This is the electronic version of a National Institute of Mental Health (NIMH) publication, available from http://www.nimh.nih.gov/publicat/index.cfm. To order a print copy, call the NIMH Information Center at 301-443-4513 or 1-866-615-6464 (toll-free). Visit the NIMH Web site (http://www.nimh.nih.gov) for information that supplements this publication.

To learn more about NIMH programs and publications, contact the following:

Web address:
http://www.nimh.nih.gov

E-mail:
nimhinfo@nih.gov

Phone numbers:
301-443-4513 (local)
1-866-615-6464 (toll-free)
301-443-8431 (TTY)
1-866-415-8051 (TTY toll-free)

Fax numbers:
301-443-4279
301-443-5158 (FAX 4U)

Street address:
National Institute of Mental Health
Office of Communications
Room 8184, MSC 9663
6001 Executive Boulevard
Bethesda, Maryland 20892-9663 USA

This information is in the public domain and can be copied or reproduced without permission from NIMH. To reference this material, we suggest the following format:

National Institute of Mental Health. Title. Bethesda (MD): National Institute of Mental Health, National Institutes of Health, US Department of Health and Human Services; Year of Publication/Printing [Date of Update/Revision; Date of Citation]. Extent. (NIH Publication No XXX XXXX). Availability.

A specific example is:
National Institute of Mental Health. Childhood-Onset Schizophrenia: An Update from the National Institute of Mental Health. Bethesda (MD): National Institute of Mental Health, National Institutes of Health, US Department of Health and Human Services;
2003 [cited 2004 February 24]. (NIH Publication Number: NIH 5124). 4 pages. Available from: http://www.nimh.nih.gov/publicat/schizkids.cfm